REMARKS/ARGUMENTS

Claims 19-33 and 37-61 were previously pending in the application. Claims 43- 53 and 55-61 are canceled; claims 39, 41-42, and 54 are amended; and new claims 62-79 are added herein. Assuming the entry of this amendment, claims 19-33, 37-42, 54, and 62-79 are now pending in the application. The Applicant hereby requests further examination and reconsideration of the application in view of the foregoing amendments and these remarks.

In paragraph 1 of the final office action, the Examiner requested that the Applicant submit an additional amendment to the specification. In response, the Applicant submits herewith the additional amendment suggested by the Examiner.

In paragraph 2, the Examiner objected to claims 39-40 because of informalities. In response, the Applicant has amended claim 39 as suggested by the Examiner.

In paragraph 4, the Examiner rejected claims 41-44 and 46 under 35 U.S.C. 102(b) as being anticipated by Nojima. In paragraph 11, the Examiner rejected claims 45, 48, 54-55, and 59 under 35 U.S.C. 103(a) as being unpatentable over Nojima in view of Seidel. In paragraph 25, the Examiner rejected claim 47 under 35 U.S.C. 103(a) as being unpatentable over Nojima in view of Wilson. In paragraph 30, the Examiner rejected claim 49 under 35 U.S.C. 103(a) as being unpatentable over Nojima in view of Seidel and Alinikula. In paragraph 33, the Examiner allowed claims 19-33 and 37-38. In paragraph 34, the Examiner stated that claims 39-40 would be allowable if rewritten or amended to overcome the objections of paragraph 2. In paragraph 35, the Examiner objected to claims 50-53, 56-58, and 60-61 as being dependent upon a rejected base claim, but indicated that those claims would be allowable if rewritten in independent form. For the following reasons, the Applicant submits that all of the now-pending claims are allowable over the cited references.

Currently Amended Claim 41

Claim 41 has been amended to recite that the first set of circuitry is adapted to inject a first DC signal during the generation of the first high-order signal to reduce lower-order tone energy in the first high-order signal, where the order of the first high-order signal is greater than or equal to three. Support for these amendments is found, for example, in previously pending, now-canceled claims 50-51. In the final office action, the Examiner indicated that all dependent claims that recited features related to the injection of a DC signal (e.g., claims 50, 56, and 59) were directed to allowable subject matter. As such, the Applicant submits that the amendment to claim 41 should be entered, notwithstanding the fact that it is an after-final amendment.

Moreover, the Applicant submits that this currently amended claim 41 is allowable over the cited references for the same reasons that claims 50, 56, and 59 were indicated as being directed to allowable subject matter. Since claims 42, 54, and 62-79 depend variously from claim 41, it is further submitted that those claims are also allowable over the cited references.

Currently Amended Claim 42

Claim 42 has been amended to include the features of previously pending, now-canceled claims 43 and 48. In the pending office action, the Examiner rejected claim 48 citing a combination of teachings in Nojima and Seidel. For the following reasons, the Applicant submits that the rejection of previously pending claim 48 was improper. As such, the Applicant submits that the finality of the pending office action is improper.

According to previously pending claim 48 and now recited in currently amended claim 42, the first combiner combines first and second versions of the input signal to generate a second-order signal, and the second combiner combines a third version of the input signal with the second-order signal to generate the third-order signal. In rejecting claim 48, the Examiner admitted that Nojima does not teach the circuitry of claim 48, but stated that Seidel does.

In particular, the Examiner indicated that element 57 in Seidel's Fig. 5 combines first and second versions of the input signal to generate a second-order signal and is therefore an example of the first combiner of claim 48. The Examiner also indicated that element 58 in Seidel's Fig. 5 combines a third version of the input signal with the second-order signal to generate the third-order signal and is therefore an example of the second combiner of claim 48.

The Applicant submits that the Examiner mischaracterized the teachings in Seidel. As explained in column 5, line 36, to column 6, line 31, nonlinear network 53 converts a version of input signal e into the first-order output signal $f(e)$ given by Equation (5). Meanwhile, phase shifter 55, nonlinear network 54, and phase shifter 56 together convert another version of input signal e into the first-order output signal $-f(-e)$ given by Equation (7). These two first-order output signals are applied to power combiner 57, which generates the first-order output signal $F(e)$ given by Equation (8).

Meanwhile, phase shifter 59 converts another version of input signal e into an inverted version $-k_1e$, which is applied to signal combiner 58 along with the first-order output signal $F(e)$ to generate the third-order output signal $F'(e)$ given by Equation (9).

Given these explicit and detailed teachings in Seidel, the Applicant submits that:

- The inputs to power combiner 57 (i.e., $f(e)$ and $-f(-e)$) are <u>not</u> versions of the input signal.
- The output of power combiner 57 (i.e., $F(e)$) is <u>not</u> a second-order signal; in fact, as shown in Equation (8), $F(e)$ does not even have a second-order term.
- Neither of the inputs to signal combiner 58 (i.e., $-k_1e$ and $F(e)$) is a second-order signal.

As such, the Applicant submits that power combiner 57 is <u>not</u> an example of the first combiner of claim 48, and signal combiner 58 is <u>not</u> an example of the second combiner of claim 48.

In view of the foregoing, the Applicant submits that the Examiner mischaracterized the teachings of Seidel and improperly applied those mischaracterized teachings in rejecting claim 48. As such, the Applicant submits that the rejection of claim 48 was improper and that therefore the finality of the pending office action is also improper.

The Applicant also submits that this provides additional reasons for the allowability of currently amended claim 42 over the cited references.

<u>Currently Amended Claim 54</u>

Claim 54 has been amended to include the features of previously pending, now-canceled claim 55. In the pending office action, the Examiner rejected previously pending claim 55 citing a combination of teachings in Nojima and Seidel. For the following reasons, the Applicant submits that the rejection of previously pending claim 55 was improper. As such, the Applicant submits that this provides an additional reason that the finality of the pending office action is improper.

According to previously pending claim 55 and now recited in currently amended claim 54, the third combiner combines a version of the second-order signal with a version of the third-order signal to

generate the fifth-order signal. In rejecting claim 55, the Examiner admitted that Nojima does not teach the circuitry of claim 55, but stated that Seidel does. In particular, the Examiner stated that Seidel's Fig. 6 "includes a combination of a second-order signal generated via block 65 with a third-order signal generated via block 66."

The Applicant submits that the Examiner mischaracterized the teachings in Seidel. As explained in column 6, lines 32-59, and as shown in Fig. 6, block 65 represents a second-order compensating network similar to that shown in Fig. 4, whose output has a second-order term as its lowest-order distortion term, while block 66 represents a third-order compensating network similar to that shown in Fig. 5, whose output has a third-order term as its lowest-order distortion term.

As further shown in Fig. 6, the second-order output from block 65 is combined with a version of the first-order input signal e, which produces a first-order signal having the first-order term e from the delayed input signal and the second-order term e^2 from block 65. That first-order signal is then combined with the third-order output term e^3 from block 66, which produces another first-order signal having the first-order term e from the delayed input signal, the second-order term e^2 from block 65, and the third-order term e^3 from block 66. This first-order signal is then applied to amplifier 64, which generates the fourth-order distortion signal e^4.

Given these explicit and detailed teachings in Seidel, the Applicant submits that Seidel does not teach a combiner that combines a second-order signal with a third-order signal to generate a fifth-order signal.

In view of the foregoing, the Applicant submits that the Examiner mischaracterized the teachings of Seidel and improperly applied those mischaracterized teachings in rejecting claim 55. As such, the Applicant submits that the rejection of claim 55 was improper and that therefore the finality of the pending office action is also improper.

The Applicant also submits that this provides additional reasons for the allowability of currently amended claim 54 over the cited references.

New Claims 62-79

In previously pending, now-canceled claim 44, the first high-order signal was a fifth-order signal and the second high-order signal was a third-order signal. This awkwardness resulted from the order of the first high-order signal of previously pending claim 41 being greater than or equal to five, while the order of the second high-order signal of previously pending claim 42 was greater than or equal to three.

Since currently amended claim 41 now recites that the order of the first high-order signal is greater than or equal to three, it became unwieldy to amend all of previously pending claims 42-61. As such, previously pending claims 43-53 and 55-61 have been canceled and new claims 62-79 have been added.

New claims 62-79 depend variously from currently amended claim 41 and are therefore also allowable. Support for new claims 62-79 is as follows:

New Claim	Support
62	Fig. 2 and previously pending claims 48 and 50
63	Fig. 2
64	Fig. 2 and previously pending claim 52
65	Fig. 3 and previously pending claim 53
66	Fig. 4
67	Fig. 4
68	Figs. 5-9
69	Fig. 5 and previously pending claims 54-55
70	Fig. 7
71	Fig. 7 and previously pending claim 58
72	Figs. 8-9
73	Figs. 8-9
74	Fig. 6 and previously pending claims 54 and 59
75	Fig. 6
76	Fig. 7
77	Fig. 10 and previously pending claim 45
78	Fig. 10
79	Fig. 1 and previously pending claim 47

In view of the above amendments and remarks, the Applicant believes that the now-pending claims are in condition for allowance. Therefore, the Applicant believes that the entire application is now in condition for allowance, and early and favorable action is respectfully solicited.

Respectfully submitted,

Date: 4/4/05

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